

PLANNING AND DECISION AIDS-I

This session and the one follows shall introduce the planning tools and techniques that managers have at their disposal to assist them in performing the management functions. Management Science or Operation Research is a management perspective aimed at increased decision effectiveness by use of sophisticated mathematical models and statistical methods.

1. TECHNIQUES FOR ASSESSING THE ENVIRONMENT

Several techniques have been developed to assist managers in assessing the organization's environment.

Environmental scanning

Environmental scanning is the screening of large amounts of information to anticipate and interpret changes in the environment. It's used by both large and small organizations, and research has shown that companies with advanced environmental scanning systems increased their profits and revenue growth.

SWOT analysis is an analysis of an organization's strengths, weaknesses, opportunities, and threats. It brings together the internal and external environmental analyses in order to identify a strategic niche the organization might exploit.

Competitor intelligence is an environmental scanning activity that seeks to identify who competitors are, what they are doing, and how their actions will affect the organization.

Another type of environmental scanning is global scanning in which managers assess the changes and trends in the global environment.

Environmental scanning provides the foundation for developing **forecasts**, which are predictions of outcomes.

1. There are three categories of forecasting techniques.
 - a. **Quantitative forecasting** applies a set of mathematical rules to a series of past data to predict outcomes.
 - b. **Qualitative forecasting** uses the judgment and opinions of knowledgeable individuals to predict outcomes.
 - c. **Judgmental forecasting**

Forecasting

Forecasting is the process of predicting changing conditions and future events that may significantly affect the business of an organization.

1. Forecasting is important to both planning and decision making.
2. Forecasting is used in a variety of areas such as: production planning, budgeting, strategic planning, sales analysis, inventory control, marketing planning, logistics planning, and purchasing among others.

It's important to look at forecasting effectiveness. Forecasting techniques are most accurate when the environment is not rapidly changing. Some suggestions for improving forecasting effectiveness are as follows:

- 1) Use simple forecasting techniques.
- 2) Compare every forecast with “no change.”
- 3) Don’t rely on a single forecasting method.
- 4) Don’t assume that you can accurately identify turning points in a trend.
- 5) Shorten the length of the forecasts.
- 6) Forecasting is a managerial skill and can be practiced and improved.

Methods of Forecasting

- A. **Quantitative forecasting** relies on numerical data and mathematical model to predict future conditions. There are two types of quantitative forecasting most frequently used.
1. **Time-series methods** used historical data to develop forecasts of the future.
 - a. The underlying assumption is that patterns exist and that the future will resemble the past.
 - b. Time-series methods do not in themselves predict the impact of present or future actions that managers might take to bring about change.
 - c. A trend reflects a long-range general movement is either an upward or a downward direction.
 - d. A seasonal pattern indicates upward or downward changes that coincide with particular points within a given year.
 - e. A cyclical pattern involves changes at particular points in time that span longer than a year.
 - f. Time-series are more valuable for predicting broad environmental factors than in predicting the impact of present or future actions.
 - g. Because time-series rely on past trends there can be a danger in their use if environmental changes are disregarded.
 2. **Explanatory or causal models** attempt to identify the major variables that are related to or have caused particular past conditions and then use current measures of those variables (predictors) to predict future conditions.
 - a. Explanatory models allow managers to assess the probable impact of changes in the predictors.
 - b. **Regression models** are equations that express the fluctuations in the variable being forecasted in terms of fluctuations among one or more other variables.
 - c. **Econometric models** are systems of simultaneous multiple regression equations involving several predictor variables used to identify and measure relationships or interrelationships that exist in the economy.
 - d. **Leading indicators** are variables that tend to be correlate with the phenomenon of major interest but also tend to occur in advance of the phenomenon.
- B. **Technological, or Qualitative, Forecasting** is aimed primarily at predicting long-term trends in technology and other important aspects of the environment

The focus is upon longer-term issues that are less amenable to numerical analysis as quantitative approaches.

The **Delphi method and Scenario analysis can be used as techniques.**

- C. **Judgmental Forecasting** relies mainly on individual judgments or committee agreements regarding future conditions.

1. Judgmental forecasting methods are highly susceptible to bias.
2. The **jury of executive opinion** is one of the two judgmental forecasting model. It is a means of forecasting in which organization executives hold a meeting and estimate, as a group, a forecast for a particular item.
3. The **Sales-force composite** is a means of forecasting that is used mainly to predict future sales and typically involves obtaining the views of various salespeople, sales managers, and/or distributors regarding the sales outlook.

The choice of which forecasting method to use depends upon the needs within particular forecasting situations.

1. **Quantitative forecasting** methods:
 - a. have a short-to-medium time horizon
 - b. require a short period of time if a method is developed
 - c. often have high development costs
 - d. are high in accuracy in identifying patterns
 - e. are low in accuracy in predicting turning points for time series, but medium for other methods.
 - f. Are difficult to understand
2. **Technological forecasting** methods:
 - a. have a medium-to-long time horizon
 - b. require a medium-to-long time
 - c. have medium development costs
 - d. are of medium accuracy in identifying patterns
 - e. are of medium accuracy in predicting turning points
 - f. are easily understood.
3. **Judgmental forecasting** methods:
 - a. have a short-to-long time horizon
 - b. require a short time
 - c. have low development costs
 - d. are of medium-to-high accuracy in identifying patterns
 - e. are of low accuracy in predicting turning points
 - f. are easily understood

Benchmarking

Benchmarking is the search for the best practices among competitors or non-competitors that lead to their superior performance.

The benchmarking process typically follows four steps.

- a. A benchmarking planning team is formed. The team's initial task is to identify what is to be benchmarked, identify comparative organizations, and determine data collection methods.
- b. The team collects internal and external data.
- c. The data is analyzed to identify performance gaps and to determine the cause of the difference.
- d. An action plan is prepared and implemented.